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ADMINISTRATIVELY CONFIDENTIAL

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service
Entomology Research Division
Section of Insects Affecting Animals

Orlando, Florida
(Sub-laboratory of Kerrville, Texas)

STATION ANNUAL REPORT

1957

WORK PROJECT: ENT h2 FLIES AFFECTING MAN AND LIVESTOCK

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U.S. DEPT. OF JUSTICE
FEDERAL BUREAU OF INVESTIGATION
WASHINGTON, D.C. 20535
JAN 10 1964

MEMORANDUM FOR THE DIRECTOR
FROM: SAC, NEW YORK (100-100000)

SUBJECT: [REDACTED]

100-100000

RE: [REDACTED] NEW YORK, NEW YORK, JANUARY 10, 1964.

ENCLOSURE WITHOUT RICHARD [REDACTED]
OF THE [REDACTED] DIVISION, NEW YORK
[REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED]

PERMANENT PERSONNEL

ORLANDO, FLORIDA
(Sub-laboratory of Kerrville, Texas)

Charles L. Smith <u>1</u> /	Entomologist	GS-12	Leader, Administration and Supervisor on all projects
Alfred H. Baumhover <u>1</u> /	Entomologist	GS-9	Biological Studies, Field Tests; Radiation; Attractants
Andrew J. Graham	Entomologist	GS-9	Mass Larval-rearing Methods and Techniques; Radiation
Clinton C. Skipper <u>1</u> /	Entomologist	GS-9	Ecological Studies Field Tests
Murray Brandstein <u>2</u> /	Bacteriologist	GS-9	Attractants
Weston D. New <u>1</u> /	Biological Aid	GS-5	Biological Studies, Mass Larval-rearing Methods
Frank H. Dudley	Biological Aid	GS-5	Mass Larval-rearing Methods and Techniques; Ecological Studies
Della R. Sims <u>3</u> /	Clerk Steno	GS-4	Clerical
Francis E. Tyo <u>1</u> /	Trades Helper	WB	General
Daniel Smith	Laborer III	WB	General

1/ Detailed to ADE 10/6/57

2/ Transferred to Veterans Administration 1/28/57

3/ Transferred to Section of Insects Aff. Man 10/6/57

STATION ANNUAL REPORT

ORLANDO, FLORIDA
(Sub-laboratory of Kerrville, Texas)

ENT h2 FLIES AFFECTING MAN AND LIVESTOCK

Research Line Project ENT h2-15 Development of improved mass rearing and distribution techniques for screw-worm eradication.

1. Field tests with sterilized screw-worm flies

In cooperation with the Animal Disease Eradication Division a large-scale field test was conducted to test the principles and operating procedures which had been developed in laboratory and small-scale field research for a final research check before making recommendations concerning screw-worm eradication. During the period May thru August sterilized screw-worm flies were released at the rate of 500 sterile males per square mile per week (plus an equal number of sterile females) over a 2,000-square mile plot adjoining the Atlantic Ocean east of Orlando. In spite of the fact that tests were conducted during a screw-worm outbreak when the native fly population was the highest ever recorded in the history of the Florida infestation, the releases were remarkably effective. After 7 weeks of releasing, more than 70% of the egg masses collected in the center of the test area were infertile. This high proportion of sterile matings under the most adverse conditions indicated excellent chances of success for an eradication program in which the entire overwintering area would be saturated with sterile flies.

The production and release of two million sterilized flies per week over a 3-month period provided an excellent opportunity to evaluate mass culture methods as related to breeding colony maintenance, egging procedures, larva rearing, pupa handling, sterilization techniques, fly packaging, and airplane release.

2. Research assistance to ADE and the Florida Livestock Board in planning for screw-worm eradication.

During September, October, and November the head of the Section of Insects Affecting Animals went to Orlando and with the full participation of the entomological staff of the Orlando screw-worm project worked with ADE and Florida State officials interpreting research results as they applied to screw-worm eradication and helping in the development of plans and procedures for the eradication campaign.

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3. Screw-worm attractant studies

The liquid which drains from frozen ground beef heart was proved to attract ovipositing screw-worm flies. Incubating the non-sterile meat juice at 97° greatly increased the attractiveness. The juice from ground meat frozen when strickly fresh required more incubation than that from meat which was not frozen promptly. Depending upon the condition of the meat at the time of freezing, the incubation period for optimum attractiveness varied from 36 to 96 hours.

The attractive principle is apparently the product of bacterial metabolism since the addition of penicillin and streptomycin to the juices before incubation inhibited the development of the attractive principle.

Attempts to concentrate and isolate the attractant principle were made in cooperation with chemists of Pesticide Chemicals Research Laboratories. Preliminary tests with separations of the solid and liquid phase of the incubated juice, and fractional precipitation of the liquid phase did not isolate a material more attractive than before separation.

Flies of the laboratory strain oviposited much more readily than did first generation native flies reared from eggs collected in nature. Apparently there has been selection in the laboratory strain by propagating only those insects which oviposit most readily and the native flies are more discriminating so that it is very difficult to induce oviposition except on a living wounded animal.

First generation native flies were liberated in cages for laboratory attractant tests. In one test they oviposited on an unwounded domestic rabbit where its fur was saturated with incubated meat juice. In two other tests native caged flies laid on cow hide saturated with the attractant.

One outdoor field test was made using the attractant on cow hide heated to body temperature. Several screw-worm flies came to the hide and fed on the meat juice but none oviposited. The work could not be followed further because all the technical workers had to spend full time on the large-scale field test and the subsequent eradication program. It has been recommended that the methods development group of ADE continue the observations as there is considerable promise of using this method for collecting egg masses to check on mating efficiency of released sterile flies.

